



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,730	09/08/2003	Charles E. Price	046478.257670	8909
826	7590	09/07/2006	EXAMINER	
ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000				MATTHEWS, TERRELL HOWARD
			ART UNIT	PAPER NUMBER
				3654

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/657,730	PRICE ET AL.	
	Examiner Terrell H. Matthews	Art Unit 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 03 July 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-16, 26-40, 57-67 and 73-82 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## FINAL REJECTION

Applicants arguments filed 7/3/2006 have been fully considered but they are not persuasive for reasons as detailed below.

The prior art rejections are maintained or modified as follows.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 8, 57-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cristovici (5427607) in view of Langhoff (US-4508542).

Referring to claim 1-2,57-58. Cristovici discloses a method comprising the steps of mixing slag with water to form a slurry, screening the slurry through a first screen to remove a first portion of material, screening the slurry subsequent to the first screening step through a second screen to remove a second portion of material (See Fig. 1). Cristovici does not disclose that the carbon content is less than about 5% or that the carbon content is less than 1%. Langhoff discloses a "Slag Separator For A Coal Gasification Installation". Langhoff further discloses mixing the slag from coal gasification with water to form slurry and separating the slag particles. It would have

been obvious to a person of ordinary skill in the art at the time of the invention to modify Cristovici and include screens that would allow the coal slurry to be screened to separate the coarse and fine particles from one another and in to modify Cristovici in view of Langhoff wherein slag from coal gasification was screened to obtain a portion of material from the slurry where the carbon content was less than about 1%.

Referring to claims 3-4,59-60. Cristovici does not disclose that the first portion of material has a particle size exceeding .5 inches or between .5 inches and 840 $\mu$ m. It would have been obvious to a person of ordinary skill in the art to modify Cristovici's method by changing the screens so that the particles screened exceeded or were between .5 inches and 840 $\mu$ m because the screens could be used to screen a wider range of materials, thus increasing their versatility.

Referring to claim 8. Cristovici discloses vibrating at least one of the first and second screens concurrently with first and second screening stops (See Col. 4l. 23-26).

Claims 5-6, 9-12,14, 26-31, 33-36, 38,61,63-66,73-77,79-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cristovici in view of Langhoff (US-4508542) and in further view of Carignani (3851827).

Referring to claim 5-6, 30-31,61 Carignani discloses a "Method and Device for Transforming Slurries" as claimed. See Figs. 1-5 and respective portions of the specification. Carignani further discloses a slurry (5) flowing to a tank (7) then going to a

centrifuge (109) where it is dewatered and then subsequently to a mixer (120) and then sent to a granulating device (110). (See Col. 6 l. 45-53). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of Cristovici to include the teachings of Carignani and dewater the slurry prior to mixing so that the mixing step involved mixing the concentrated particles, which would make it easier to process during the subsequent operations. It should be noted that Cristovici discloses that the products can be dewatered prior to going through a second mixing step (See Col. 4 l. 20-22).

Referring to claim 9-10,14,26-29,34, 64-65,73-76,80. Cristovici does not disclose screening a slurry subsequent to the second screening step through a centrifuge to remove a third portion of material. Cristovici does disclose screening the slurry to a hydrocyclone (23) to remove a third portion of material. Langhoff discloses the system as described above. Langhoff further discloses mixing the slag from coal gasification with a water to form slurry and separating the slag particles. Carignani discloses using a centrifuge (9) to screen a part of the slurry. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of Cristovici in view of Carignani teachings to add a centrifuge to screen and remove a third useful portion of material between approximately 840 $\mu$ m and 45 $\mu$ m. This would have been done so that fine particles could be removed as a third portion and separated from the coarse particles. Additionally, it would have been obvious to a person of ordinary skill in the art at the time of the invention that the screens in the process could be sized

accordingly to screen for multiple sized particles and materials with a specific percentage content.

Referring to claim 11,35,79. Cristovici discloses the process for the recovery of slags and other residues as disclosed above. Cristovici further discloses screening materials through multiple screens for separating larger particles from the finely ground materials and retaining a third portion a vibratory screen (20). Cristovici does not disclose using the third portion of material removed as at least one of a fuel product and an adsorbent carbon. Langhoff discloses the system as discussed above. Langhoff further discloses the process of separating slag particles from coal gasification. It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the process of Cristovici so that a fuel product or adsorbent carbon was removed as the third portion from the coal slurry in view of Langhoff. This would have been done so that you could separate the useful fine-screened fuel product portion from the other coarser particles.

Referring to claim 12,36,66,81. Cristovici does not disclose thickening the slurry subsequent to the third screening step using an anionic flocculant selected from a group consisting of polyacrylamide and acrylamide copolymers to thereby remove a forth portion of material from the slurry. Carignani discloses adding a flocculant product (108) to the slurry (See Col. 6 l. 17-18). It would have been obvious to a person of ordinary skill in the art to modify the process of Cristovici and include the teachings of Carignani

by adding a thickener such as a flocculant product as suggested by Carignani to thicken the slurry to make it easier for further subsequent screening and removing of particles.

Referring to claim 14,38. Cristovici does not disclose that the fourth portion of material removed has a particle size of less than approximately 45 $\mu$ m. It would have been obvious to a person of ordinary skill in the art to modify the process of Cristovici to modify the screens and centrifuge in the process so that the fourth portion of material had particles that were sized less than approximately 45 $\mu$ m.

Referring to claim 33,63. Cristovici discloses vibrating at least one of the first and second screens concurrently with first and second screening stops (See Col. 4I. 23-26).

Referring to claim 61,77. Carignani discloses a "Method and Device for Transforming Slurries" as claimed. See Figs. 1-5 and respective portions of the specification. Carignani further discloses a slurry (5) flowing to a tank (7) then going to a centrifuge (109) where it is dewatered and then subsequently to a mixer (120) and then sent to a granulating device (110). (See Col. 6 I. 45-53). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the method of Cristovici to include the teachings of Carignani and dewater the slurry prior to mixing so that the mixing step involved mixing the concentrated particles, which would make it easier to process during the subsequent operations. It should be noted that Cristovici discloses that the products can be dewatered prior to going through a second mixing step (See Col. 4 I. 20-22) as well as that the mixer (3) provides an adequate level of agitation (See Col. 4 I. 12-15).

Claims 7,32,62,78 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cristovici in view of Langhoff and in further view of Caldwell (5992641).

Referring to claims 7,32,62,78. Caldwell discloses spraying a fluid onto at least one of the first and second screens through nozzles (28) of spray bar (26) (See Col. 6 l. 37-47). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the apparatus of Cristovici to include a spray bar and nozzles to spray fluid on the screen to help prevent build up and blinding.

Claims 1,13,37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cristovici in view Langhoff and in further view of Carignani (3851827) and Kreisler (6274045).

Referring to claims 13,37. Cristovici does not disclose using a pH modifier selected from a group consisting of sodium hydroxide or ammonium hydroxide to clarify the water. Kreisler discloses a using a pH modifier such as sodium hydroxide to alter the solubility of a compound to be recovered by changing the pH of the stream.

Claims 15-16, 39-40, 67, 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cristovici in view of Langhoff in further view of Carignani and Kuniyoshi (2001/0033823)

Referring to claims 15-16,39-40,67,82. Cristovici does not disclose processing the fourth portion of material using a belt filtering press. Kuniyoshi discloses a process comprising the steps of using a belt filtering press to treat the slurry and separate into a solid and liquid portion (See Sect. 0094). It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the process of Cristovici to include a belt filtering press to filter the fourth portion of material so that all the liquid could be removed from the slurry and separated out the remaining solids. Langhoff discloses the system as discussed above. Langhoff further discloses separating slag particles from coal gasification. Additionally, it should be noted that in view of Langhoff it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the fourth processed material as a fuel product. The fourth processed material would have been used as a fuel product because it would be the resultant product after multiple screening steps and the subsequent belt filtering press, which would leave a finely screened slag product.

#### ***Response to Arguments***

Applicant's arguments that the prior art fails to teach the claimed features are unconvincing. In particular, Applicant's focus on the "slag being slag from coal gasification" is unconvincing. Furthermore, it should be noted that Langhoff teaches the separation and mixture of slag from coal gasification with water. Additionally, it should be noted that it has been held that a recitation with respect to the manner in which the

claimed system is intended to be employed does not differentiate the claimed system from a prior art system satisfying the claimed structural limitations. Moreover, in the instant case, the applicant has failed to clearly point patentable novelty and failed to show the how the significance of slag from coal gasification differentiates the claimed process from the process of the combination of the prior art. Consequently, as a review of the prior art undermines Applicant's arguments, the claims stand rejected.

Examiner has maintained the prior art rejections, statutory rejections and drawing objections as previously stated and as modified above. Applicants' amendment necessitated any new grounds of rejection present in this Office action. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell H. Matthews whose telephone number is (571)272-5929. The examiner can normally be reached on M-F 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathy Matecki can be reached on (571) 272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

THM



KATHY MATECKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600